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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EDWARD S. WRIGHT 1100 ALMA STREET, SUITE 207 MENLO PARK, CA 94025			ZERVIGON, RUDY	
			ART UNIT	PAPER NUMBER
			1763	
DATE MAILED: 02/16/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/886,580

Applicant(s)

ZAJAC ET AL.

Examiner

Rudy Zervigon

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 68-74 and 82-91 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 68-74 and 82-91 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 68-74, and 82-91 are rejected under 35 U.S.C. 112, first paragraph, because the best mode contemplated by the inventor has not been disclosed. Evidence of concealment of the best mode is based upon Applicant's lack for teaching "means for measuring the thickness of the wafer in the different areas". Applicant's page 19, lines 13-23; page 18, lines 25-27 are vague and nonspecific for the best mode for "means for measuring the thickness of the wafer in the different areas".
3. Claims 68-74, and 82-91 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Applicant's "means for measuring the thickness of the wafer in the different areas" is not specifically taught in Applicant's specification.

Claim Rejections - 35 USC § 102

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
5. Claims 68-74, and 82-91 are rejected under 35 U.S.C. 102(b) as being anticipated by Tomoyasu; Masayuki et al. (US 5,888,907 A). Tomoyasu teaches a semiconductor wafer etching

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system (Figure 1; column 4, lines 25-50) comprising: a reaction chamber (4; Figure 1; column 4, lines 25-50), a segmented shower head (30; Figure 1; column 4, lines 25-50), means for introducing an etchant gas into the reaction chamber (4; Figure 1; column 4, lines 25-50) through the showerhead (30; Figure 1; column 4, lines 25-50):

Support for this portion of claim 68 is found in page 16 lines 20-30 for example. Specifically, the specification teaches mass flow controllers 544, 534; shut-off valves 524, 504, and 514; sources 515, 505; showerhead 501; and “reservoirs” 512, 522, and 502.

Tomoyasu teaches mass flow controllers 52a-d; shut-off valves 50a-d; sources 58, 80, 76; showerhead (30; Figure 1; column 4, lines 25-50); and “reservoirs” 62, 44a-d. As such, Tomoyasu teaches an equivalent apparatus that performs the function of introducing an etchant gas. As a result, Tomoyasu’s prior art elements listed above for introducing an etchant gas perform the identical function of introducing an etchant gas in substantially the same way, and produces substantially the same results as the corresponding elements disclosed in the specification (MPEP 2183). However, Applicant’s “introducing an etchant gas” is a claim requirement of intended use of the pending apparatus claims. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP2111.02).

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means for independently controlling the flow of gas through different segments of the shower head (30; Figure 1; column 4, lines 25-50) to adjust the etch rates in different areas of a wafer corresponding to the different segments – claim 68

Support for this portion of claim 68 is again found in page 16 lines 20-30 for example. Specifically, the specification teaches mass flow controllers 544, 534; shut-off valves 524, 504, and 514; sources 515, 505; showerhead 501; and “reservoirs” 512, 522, and 502.

Tomoyasu teaches mass flow controllers 52a-d; shut-off valves 50a-d; sources 58, 80, 76; showerhead (30; Figure 1; column 4, lines 25-50); and “reservoirs” 62, 44a-d. As such, Tomoyasu teaches an equivalent apparatus that performs the function of introducing an etchant gas. As a result, Tomoyasu’s prior art elements listed above for introducing an etchant gas perform the identical function of introducing an etchant gas in substantially the same way, and produces substantially the same results as the corresponding elements disclosed in the specification (MPEP 2183).

means for measuring the thickness of the wafer in the different areas, and – claim 68

Support for this portion of claim 68 is NOT specifically taught in applicant’s specification. See claim rejections under 112, 1st paragraph above. Specifically, the specification teaches “The thickness measurements which may be made within the system also may be made after the etch or deposition is complete, or at some period before the completion of the process may be used to determine the accuracy of the intended etch.”.

That Tomoyasu can perform a thickness measurement by hand, “after the etch or deposition is complete, or at some period before the completion of the process” demonstrates Tomoyasu’s capacity for thickness measurement performed in substantially the same way. As such,

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Tomoyasu teaches an equivalent apparatus that performs the function of thickness measurement. As a result, Tomoyasu's prior art elements of a wafer that can be measured before or after processing, perform the identical function of thickness measurement in substantially the same way, and produces substantially the same results as the corresponding elements disclosed in the specification (MPEP 2183).

means for adjusting the flow of gas through the segments in accordance with the thickness measurement to produce a wafer of predetermined thickness and uniformity – claim 68

Support for this portion of claim 68 is again found in page 16 lines 20-30 for example. Specifically, the specification teaches mass flow controllers 544, 534; shut-off valves 524, 504, and 514; sources 515, 505; showerhead 501; and “reservoirs” 512, 522, and 502.

Tomoyasu teaches mass flow controllers 52a-d; shut-off valves 50a-d; sources 58, 80, 76; showerhead (30; Figure 1; column 4, lines 25-50); and “reservoirs” 62, 44a-d. As such, Tomoyasu teaches an equivalent apparatus that performs the function of introducing an etchant gas. As a result, Tomoyasu's prior art elements listed above for introducing an etchant gas perform the identical function of introducing an etchant gas in substantially the same way, and produces substantially the same results as the corresponding elements disclosed in the specification (MPEP 2183).

Tomoyasu further teaches:

- i. The system (Figure 1; column 4, lines 25-50) of claim 68 including means for increasing the flow of etchant gas to at least one of the segments to provide an increased etch rate in the corresponding area of the wafer – claim 69. Support for this portion of claim 69 is again found in page 16 lines 20-30 for example. Specifically, the specification teaches

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mass flow controllers 544, 534; shut-off valves 524, 504, and 514; sources 515, 505; showerhead 501; and “reservoirs” 512, 522, and 502. Tomoyasu teaches mass flow controllers 52a-d; shut-off valves 50a-d; sources 58, 80, 76; showerhead (30; Figure 1; column 4, lines 25-50); and “reservoirs” 62, 44a-d. As such, Tomoyasu teaches an equivalent apparatus that performs the function of introducing an etchant gas. As a result, Tomoyasu’s prior art elements listed above for introducing an etchant gas perform the identical function of introducing an etchant gas in substantially the same way, and produces substantially the same results as the corresponding elements disclosed in the specification (MPEP 2183).

- ii. The system (Figure 1; column 4, lines 25-50) of claim 68 including means for adding a diluent or etching suppressant gas to the processing gas to decrease the etch rate in at least one section of the wafer – claim 70. Support for this portion of claim 70 is again found in page 16 lines 20-30 for example. Specifically, the specification teaches mass flow controllers 544, 534; shut-off valves 524, 504, and 514; sources 515, 505; showerhead 501; and “reservoirs” 512, 522, and 502. Tomoyasu teaches mass flow controllers 52a-d; shut-off valves 50a-d; sources 58, 80, 76; showerhead (30; Figure 1; column 4, lines 25-50); and “reservoirs” 62, 44a-d. As such, Tomoyasu teaches an equivalent apparatus that performs the function of introducing an etchant gas. As a result, Tomoyasu’s prior art elements listed above for introducing an etchant gas perform the identical function of introducing an etchant gas in substantially the same way, and produces substantially the same results as the corresponding elements disclosed in the specification (MPEP 2183).

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- iii. The system (Figure 1; column 4, lines 25-50) of claim 68 including means for adding a diluent or etching suppressant to the processing gas, and means for decreasing the flow of etchant gas through at least one of the segments to provide a decreased etch rate in the corresponding area(s) of the wafer. Support for “means for decreasing the flow of etchant gas through at least one of the segments” of claim 71 is again found in page 16 lines 20-30 for example. Specifically, the specification teaches mass flow controllers 544, 534; shut-off valves 524, 504, and 514; sources 515, 505; showerhead 501; and “reservoirs” 512, 522, and 502. Tomoyasu teaches mass flow controllers 52a-d; shut-off valves 50a-d; sources 58, 80, 76; showerhead (30; Figure 1; column 4, lines 25-50); and “reservoirs” 62, 44a-d. As such, Tomoyasu teaches an equivalent apparatus that performs the function of introducing an etchant gas. As a result, Tomoyasu’s prior art elements listed above for introducing an etchant gas perform the identical function of introducing an etchant gas in substantially the same way, and produces substantially the same results as the corresponding elements disclosed in the specification (MPEP 2183). Further, concerning applicant’s claim gas identity of “diluent or etching suppressant” is a claim requirement of intended use. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the

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claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963); MPEP 2111.02).

- iv. The system (Figure 1; column 4, lines 25-50) of Claim 68 including means for interrupting the gas flow through at least one of the segments to provide a decreased etch rate in the corresponding area(s) of the wafer, as claimed by claim 72. Support for “means for interrupting the gas flow through at least one of the segments” of claim 72 is again found in page 16 lines 20-30 for example. Specifically, the specification teaches mass flow controllers 544, 534; shut-off valves 524, 504, and 514; sources 515, 505; showerhead 501; and “reservoirs” 512, 522, and 502. Tomoyasu teaches mass flow controllers 52a-d; shut-off valves 50a-d; sources 58, 80, 76; showerhead (30; Figure 1; column 4, lines 25-50); and “reservoirs” 62, 44a-d. As such, Tomoyasu teaches an equivalent apparatus that performs the function of introducing an etchant gas. As a result, Tomoyasu’s prior art elements listed above for introducing an etchant gas perform the identical function of introducing an etchant gas in substantially the same way, and produces substantially the same results as the corresponding elements disclosed in the specification (MPEP 2183).
- v. A semiconductor wafer etching system (Figure 1; column 4, lines 25-50), comprising: a reaction chamber (4; Figure 1; column 4, lines 25-50), a segmented showerhead (30; Figure 1; column 4, lines 25-50), means (see above) for introducing an etching gas into the reaction chamber (4; Figure 1; column 4, lines 25-50) through the showerhead (30; Figure 1; column 4, lines 25-50), means (see above) for independently controlling the flow of the etching gas through different segments of the shower head (30; Figure 1;

column 4, lines 25-50) to adjust the etch rates in different areas of a wafer corresponding to the different segments (62, 44a-d; Figure 1), means (see above) for measuring the thickness of the wafer in the different areas after only a portion of the material has been removed in order to determine the effectiveness of the current flow rates on etch uniformity, and means (see above) for adjusting the flow of gas through the segments (62, 44a-d; Figure 1) in accordance with the thickness measurements to control the etch rates in the different areas, as claimed by claim 73

- vi. A semiconductor wafer etching system (Figure 1; column 4, lines 25-50) comprising: a reaction chamber (4; Figure 1; column 4, lines 25-50), a segmented showerhead (30; Figure 1; column 4, lines 25-50), means (see above) for introducing an etching gas into the reaction chamber (4; Figure 1; column 4, lines 25-50) through the showerhead (30; Figure 1; column 4, lines 25-50), means (see above) for independently controlling the flow of the etching gas through different segments (62, 44a-d; Figure 1) of the showerhead (30; Figure 1; column 4, lines 25-50) to adjust the etch rates in areas of a wafer corresponding to the different segments (62, 44a-d; Figure 1), means (see above) for measuring the thickness of the wafer in the different areas after etching is complete to determine the effectiveness of the flow rates on etch uniformity, and means for adjusting the flow rates in the different areas in accordance with the measured thicknesses for use on subsequent wafers, as claimed by claim 74
- vii. A system (Figure 1; column 4, lines 25-50) for etching substrates, comprising: a gas supply; a gas injector showerhead (30; Figure 1; column 4, lines 25-50) in the form of an electrode (88, 90, 86, 84; Figure 1) for capacitive RF discharge for etching substrates; the

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showerhead (30; Figure 1; column 4, lines 25-50) having a plurality of interior compartments (62, 44a-d; Figure 1) which are individually supplied with gas (58, 80, 76; Figure 1) from the supply, substantially isolated from each other, and distributed within the showerhead (30; Figure 1; column 4, lines 25-50) to cover a total area corresponding to and roughly covering that of the substrate ("W"; Figure 1), with each of the interior compartments (62, 44a-d; Figure 1) communicating with and supplying gas (58, 80, 76; Figure 1) to a discharge volume (4, 62, 44a-d; Figure 1) through a plurality of small holes (36a-d, 38; Figure 1); every compartment within the showerhead (30; Figure 1; column 4, lines 25-50) being connected to a line which can supply it with a fixed proportion, relative to all other compartments, of the total flow of etching process gas (58, 80, 76; Figure 1), with the etching process gas (58, 80, 76; Figure 1) being the sole supply of etching species and being complete in enabling the etching process to be performed, and the proportion of the etching gas(es) flowing to each compartment not being variable by automatic means or easily changed; a subset of compartments in the showerhead (30; Figure 1; column 4, lines 25-50) also being individually connected by leak-tight gas lines to controllable supplies of a gas or gas (58, 80, 76; Figure 1) which are not the same as the process gas (58, 80, 76; Figure 1), and which either accelerate or decelerate the rate of an RF discharge-based process which is using the etching process gases(es) – as claimed by claim 82. Applicant's claim limitations of "which can supply it with a fixed proportion, relative to all other compartments, of the total flow of etching process gas", and "not being variable by automatic means or easily changed" and "which are not the same as the process gas" are all claim requirements of intended use. Further, it has been

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held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP 2111.02).

- viii. The system (Figure 1; column 4, lines 25-50) of claim 82 where the maximum allowed flow to any compartment (62, 44a-d; Figure 1) of accelerant or decelerant gas (58, 80, 76; Figure 1) is less than about 20% of the flow to that compartment of the etching process gas (58, 80, 76; Figure 1), as claimed by claim 83. Applicant's claim requirement of "where the maximum allowed flow to any compartment" is a claim requirement of intended use. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP 2111.02).
- ix. The system (Figure 1; column 4, lines 25-50) of Claim 82 wherein the total of the flow of all accelerant or decelerant gases to all compartments is less than or about 20% of the

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total flow to all compartments of the etching process gas (58, 80, 76; Figure 1), as claimed by claim 84. Applicant's claim requirement of "wherein the total of the flow of all accelerant or decelerant gases to all compartments" is a claim requirement of intended use. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP 2111.02).

- x. The system (Figure 1; column 4, lines 25-50) of Claim 82 wherein the accelerant gas flow to any compartment of the showerhead (30; Figure 1; column 4, lines 25-50) is less than or about 10% of the total flow of etching process gas (58, 80, 76; Figure 1) to that compartment, as claimed by claim 85. Applicant's claim requirement of "wherein the accelerant gas flow to any compartment of the showerhead is..." is a claim requirement of intended use. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the

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claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963); MPEP 2111.02).

- xi. The system (Figure 1; column 4, lines 25-50) of Claim 82 wherein the decelerant gas flow to any compartment of the showerhead (30; Figure 1; column 4, lines 25-50) is less than or about 10% of the total flow of etching process gas (58, 80, 76; Figure 1) to that compartment, as claimed by claim 86. Applicant's claim requirement of "wherein the decelerant gas flow to any compartment of the showerhead is ..." is a claim requirement of intended use. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter, 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963); MPEP 2111.02).
- xii. A system (Figure 1; column 4, lines 25-50) for etching substrates ("W"; Figure 1), comprising: a gas injector showerhead (30; Figure 1; column 4, lines 25-50) in the form of an electrode (88, 90, 86, 84; Figure 1) for a capacitive RF discharge for etching substrates ("W"; Figure 1) having a plurality of interior compartment (62, 44a-d; Figure 1) which are individually supplied with gas (58, 80, 76; Figure 1), substantially isolated from each other, and distributed within the showerhead (30; Figure 1; column 4, lines 25-50) to cover a total area corresponding to and roughly covering that of the substrate ("W";

Figure 1), with each of interior compartments (62, 44a-d; Figure 1) communicating with and supplying gas (58, 80, 76; Figure 1) to a discharge volume (4, 62, 44a-d; Figure 1) through a plurality of small holes (36a-d, 38; Figure 1); every compartment within the showerhead (30; Figure 1; column 4, lines 25-50) being connected to a line which can supply it with a fixed proportion, relative to all other compartments, of the total flow of etching processing gas (58, 80, 76; Figure 1), with the etching processing gas (58, 80, 76; Figure 1) being the sole supply of etching species and being complete in enabling the etching process to be performed, and the proportion of the etching gas (58, 80, 76; Figure 1) flowing to each compartment not being variable by automatic means or easily changed; a subset of the compartments in the showerhead (30; Figure 1; column 4, lines 25-50) also being individually connected by leak-tight gas lines to controllable supplies of a gas or gases which are not the same as the process gases, and which either accelerate or decelerate the rate of an RF discharge-based process which is using the etching process gas (58, 80, 76; Figure 1), as claimed by claim 87. Applicant's claim limitations of "which can supply it with a fixed proportion, relative to all other compartments, of the total flow of etching process gas", and "not being variable by automatic means or easily changed" and "which are not the same as the process gas" are all claim requirements of intended use. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior

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art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963); MPEP 2111.02).

- xiii. The system (Figure 1; column 4, lines 25-50) of Claim 87 where the maximum allowed flow of accelerant or decelerant gas (58, 80, 76; Figure 1) to any compartment is less than about 20% of the flow of the etching process gas, as claimed by claim 88. Applicant's claim requirement of "where the maximum allowed flow to any compartment" is a claim requirement of intended use. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter, 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963); MPEP 2111.02).
- xiv. The system (Figure 1; column 4, lines 25-50) of Claim 87 wherein the total of the flows of all accelerant or decelerant gases to all compartments is less than or about 20% of the total flow to all compartments of the etching process gas, as claimed by claim 89. Applicant's claim requirement of "wherein the total of the flows of all accelerant or decelerant gases to all compartments is" is a claim requirement of intended use. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter, 618 F.2d at 769, 205

USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963); MPEP 2111.02).

- xv. The showerhead (30; Figure 1; column 4, lines 25-50) of Claim 87 wherein the accelerant gas flow to any compartment of the showerhead (30; Figure 1; column 4, lines 25-50) is less than or about 10% of the flow of etching gases to that compartment, as claimed by claim 90. Applicant's claim requirement of "wherein the accelerant gas flow to any compartment of the showerhead is" is a claim requirement of intended use. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter, 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963); MPEP 2111.02).
- xvi. The system (Figure 1; column 4, lines 25-50) of Claim 87 wherein the decelerant gas flow to any compartment of the showerhead is less than or about 10% of the total flow of etching gases to that compartment, as claimed by claim 91. Applicant's claim requirement of "wherein the decelerant gas flow to any compartment of the showerhead is..." is a claim requirement of intended use. Further, it has been held that claim language that

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simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto , 136 USPQ 458, 459 (CCPA 1963); MPEP 2111.02).

Response to Arguments

6. Applicant's arguments filed December 6, 2005 have been fully considered but they are not persuasive.

Applicant believes the Examiner's 112 rejections are erroneous because the "rejections are based upon the erroneous premise that a teaching of specific means for measuring thickness of a wafer in different areas is required. Instruments for measuring the thickness of wafers are well known in the art and widely available commercially, as even a quick search on the Internet will show and a person skilled in the art would have no trouble selecting a suitable one. ". In response, the Examiner cites that the test for compliance under the 35 USC 112 1st paragraph is that the best mode contemplated by the inventor be disclosed and that the claims contain subject matter which are described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. None of these requirements allow for means that "are well known in the art" or even use of "a quick search on the Internet". Contrary to Applicant's opinion, the internet is not part of Applicant's specification as originally filed.

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The Examiner, and indeed future interpreters of Applicant's claims, should not be relegated to guessing as to the means for measuring the thickness of the wafer in the different areas. What is known to artisans, and indeed the Examiner, is that there are a very large number of ways to measure film thicknesses both in situ and ex situ. The Examiner's 112 rejections are maintained. Applicant's specification teaches "The thickness measurements which may be made within the system also may be made after the etch or deposition is complete, or at some period before the completion of the process may be used to determine the accuracy of the intended etch." As such, Tomoyasu is capable of measuring the film thickness by removing the substrate and measuring accordingly.

7. Applicant states, with regard to Tomoyasu:

"

Delivering the gas from the different group of nozzles in a time sharing manner is fundamental to the operation of the system shown in Tomoyasu et al., and that fundamental operation would be destroyed by delivering the gas in accordance with the thickness of the wafer in the different areas.

"

Applicant's position that Tomoyasu would not operate his apparatus in a manner to ensure uniform deposition, or in Applicant's words "in accordance with the thickness of the wafer in the different areas" is fundamentally contradictory to all semiconductor operations in both depositions and etching. It is presumed, according to Applicant's title of invention, that both Applicant and the Examiner's applied prior art to Tomoyasu would not have their "fundamental operation destroyed" by evaluating the processed film, ex-situ as Applicant's specification

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suggests, and then changing or optimizing the processing for better results. Indeed Tomoyasu teaches film uniformity or Applicant's "the thickness of the wafer in the different areas" as a paramount objective to which all of Tomoyasu's apparatus components are designed to achieve:

"

The present invention has been made in light of the above described problems, and its object is to provide a plasma processing method and apparatus in which a target object having a large surface area can be subjected to a process at a high planar uniformity and a high rate...

" (column 2; lines 10-30, and throughout)

8. The response to the remainder of Applicant's arguments are found in the body of the Examiner's anticipation rejections.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (571) 272-1442. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official fax phone number for the 1763 art unit is (571) 273-8300. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (571) 272-1700. If the examiner can not be reached please contact the examiner's supervisor, Parviz Hassanzadeh, at (571) 272-1435.

Rudy Zervigon
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